

APPENDIX 5B

CAISO Letter



October 10, 2005

Mr. Stephen R. Taylor
Senior Energy Administrator
San Diego Gas and Electric Company
8316 Century Park Court, CP52A
San Diego, CA 92123

Subject: Duke Energy South Bay Project - Preliminary Interconnection Approval

Dear Mr. Taylor:

The California ISO (Cal-ISO) has reviewed the System Impact Study conducted by San Diego Gas and Electric Company (SDG&E) for the Duke Energy South Bay Project (Project), as requested by the generation developer, Duke Energy. The draft of the System Impact Study Report was dated August 5, 2005. After reviewing the report, the Cal-ISO sent comments to SDG&E on August 18, 2005. These comments were addressed and additional information requested by the Cal-ISO was received September 9, 2005.

The proposed project will be located south of the existing South Bay Power Plant in the city of Chula Vista. It will be a 650 MW combined cycle power plant that will replace the existing South Bay generation facilities after the existing plant retires. The planned commercial operation date for the South Bay Re-powering Project is January 2010 with the testing starting in August 2009. The project will consist of two gas and one steam turbine generators.

At the request of Duke Energy, SDG&E studied several alternatives of the project interconnection. The existing South Bay Substation has 138 kV and 69 kV buses. With the South Bay re-powering project, the existing substation will be moved to a new location and expanded to the 230 kV level. SDG&E and Duke Energy considered several alternatives of connection of the generating units with different combinations of the units connected to different voltage levels. An alternative of the generation units interconnection that was selected consists of one 165 MW gas unit connected to the 69 kV bus, the second 165 MW gas unit connected to the 138 kV bus and the 320 MW steam unit connected to the future 230 kV bus. Other alternatives of the South Bay units' connections were studied previously and the alternative of connection to three voltage levels was selected since it had better system performance. Final scope and design of the 230 kV interconnection's configuration will be developed in the Detailed Facilities Study. Each unit will have a separate step-up transformer.

Other alternatives of the project interconnection that included utilizing the existing South Bay Power Plant Substation were rejected because they did not integrate with the SDG&E's long term commitments as were defined in the Memorandum of Understanding (MOU) with the City of Chula Vista. This MOU was developed in regards to the Otay Mesa Power Purchase Agreement Transmission Project (Otay Mesa PPA). The Otay Mesa PPA includes construction of two new 230 kV transmission lines to deliver power from the proposed Otay Mesa power plant. One transmission line will connect the Otay Mesa power plant located south of Miguel Substation to the Sycamore Canyon 230 kV Substation. The second transmission line will connect Otay Mesa with the Old Town 230 kV Substation. This line's route will go by the site of the new South Bay Project, and it is planned to connect the future 230 kV South Bay bus to this line. The MOU between SDG&E and the City of Chula Vista includes, among others, removal of the 138 kV transmission lines between the existing South Bay and Main Street Substations. The SDG&E long-term transmission expansion plan also includes relocation of the existing South Bay 138/69 kV Substation to a new site.

The System Impact Study (SIS) was performed to determine the transmission system impacts caused by interconnecting the Project to the grid, and the system reinforcements required to mitigate any adverse system impacts. The SIS included power flow and short circuit studies, but not transient and post-transient stability analyses. These analyses will be included in the Detailed Facility Study (DFS). Cost estimates to interconnect the project and to mitigate its negative impacts, if any, will also be performed as a part of the DFS.

SIS Study Assumptions and Methodology

The base case chosen for the study was 2009 Heavy Summer. The case with the re-powered South Bay power plant was compared with the case that included the existing South Bay plant. The system model without the South Bay plant was not studied because it was assumed that the existing power plant would retire only after the new plant is built and operational. The South Bay generation was modeled at 563 MW in the case with the existing power plant and at 650 MW in the case with the re-powered plant.

The base cases for power flow simulation took into account all approved SDG&E transmission system reinforcement projects that will be operational by June 2009. The study also considered the planned generating facilities in SDG&E's service territory whose schedules are concurrent with or precede the schedule for the South Bay Re-powering Project. One of these projects is the 750 MW ENPEX generation facility that was modeled connected to the Sycamore 230 kV bus. Its generation was modeled at 500 MW with one 250 MW generation unit out of service. Other new generation projects included the Palomar project modeled at 541 MW and Otay Mesa modeled at 560 MW output. SDG&E also performed sensitivity studies with different dispatch of the new and existing generation units.

In addition to the Otay Mesa PPA Transmission Project, it was also assumed that the new Silver Gate 230/69 kV Substation Project would also be in service. The Silver Gate Substation was modeled connected to the Otay Mesa-Old Town 230 kV line. Both

South Bay-Main 138 kV transmission lines were assumed to be removed according to the MOU between SDG&E and the City of Chula Vista.

The power flow cases modeled import into SDG&E at 2300 MW both pre-project and post project. The difference in losses and South Bay generation between the cases before and after the South Bay re-powering was modeled to be picked up at the Encina power plant. The Encina generation was modeled at 385 MW before the South Bay re-powering and at 302 MW after it.

It is the Cal-ISO understanding that the South Bay power plant was not modeled at its full output in the pre-project case because if it generates more than 563 MW, the 138/69 kV transformer at the South Bay substation would be overloaded. This restriction in the dispatch of the existing South Bay plant was caused by removal of the South Bay-Main 138 kV circuits.

System Impact Study Results

The power flow studies did not identify any overload under normal system conditions with all facilities in service with the South Bay Re-powering Project.

The SDG&E studies indicated one overload caused by the South Bay Re-powering under Category B (single facility) contingencies: overload of the Sycamore Canyon-Carlton Hill tap 138 kV transmission circuit. This line might overload with an outage of the Palomar-Escondido 230 kV line or Silver Gate-South Bay 230 kV line. The Sycamore Canyon-Carlton Hills tap section is planned to be reconducted to accommodate the output from the Otay Mesa power plant, and the SDG&E study assumed that it was reconducted. The identified overload was up to 6% above the rating of the reconducted line.

The adjacent 138 kV transmission line, Sycamore Canyon-Chicarita, might also overload with single outages. This line is not planned to be reconducted. The SDG&E study showed that the Sycamore Canyon-Chicarita 138 kV line might overload both before and after the South Bay Re-powering project: up to 3% before the project and up to 15% after it.

In the Cal-ISO opinion, overloads of the Sycamore Canyon-Carlton Hills tap and Sycamore Canyon-Chicarita 138 kV transmission lines were mainly caused by the ENPEX generation project, which is ahead of the South Bay Re-powering Project in the generation interconnection queue. ENPEX used all the capacity available on these lines. Without this project, these lines would not overload, and the reconducting of the Sycamore Canyon-Carlton Hills tap section when the Otay Mesa power plant comes on-line will be sufficient. Now, it is not clear if the ENPEX project will be built, since there were no developments regarding this project since February 2004 when its System Impact Study was reviewed by the Cal-ISO. Moreover, it was specified in the ENPEX studies that this project would be developed only if the South Bay power plant retires and would not be replaced. Therefore, it is quite unlikely that the ENPEX plant will be constructed. If it appears that the ENPEX Project is being built, then additional system reinforcements, such as re-conducting of the Sycamore Canyon-Carlton Hills tap line

with a higher-rating conductor and reconductoring of the Sycamore Canyon-Chicarita 138 kV line will be needed. In the Cal-ISO estimate, without ENPEX, loading on the Sycamore Canyon-Carlton Hills tap section will not exceed 75% of its rating, and the loading on the Sycamore Canyon-Chicarita line will not exceed 99% of its rating.

Other overloads caused by single outages were observed both before and after the South Bay Re-powering and either were caused by the ENPEX project or already had solutions to mitigate them. The facilities that might overload include Imperial Valley-La Rosita 230 kV line, Escondido 138/69 kV Transformer, Otay-Otay Lake tap 69 kV line, Poway-Pomerado 69 kV line, and Sycamore Canyon 230/69 kV transformers. The South Bay Re-powering Project did not have significant impact on these loadings.

Category C (multiple outages) contingencies studies identified numerous overloads both with and without the South Bay Re-powering Project. Mitigation of these overloads was not discussed in the System Impact Study Report, and should be considered in the Detailed Facilities Study. The Detailed Facilities Study should clearly identify the mitigation measures that the new South Bay Project would be responsible for.

The Short Circuit Study did not show any overstressed circuit breakers due to the South Bay Re-powering Project.

Cal-ISO Conclusions and Recommendations

There are significant uncertainties regarding both development of the South Bay Re-powering Project and the downtown San Diego transmission system configuration at the time the project is constructed.

Duke Energy Company has recently announced that it would sell approximately 6200 MW of its generation assets, which might include the existing South Bay Power plant. Therefore, it is not clear if the plant will be re-powered and if it will retire. In addition, it is not clear if the ENPEX power plant, that was modeled in-service in the studies, would be constructed.

Uncertainties regarding the development of the downtown San Diego transmission system include relocation and rearrangement of the 138 kV system. Also, the 230 kV Silver Gate Substation Project, assumed to be in service in the South Bay Re-powering studies, was not yet approved by the Cal-ISO. The Otay Mesa PPA Transmission Project was approved by the Cal-ISO, and received a Certificate of Public Convenience and Necessity (CPCN) from the CPUC. However, since the construction of this project has not started yet, and the Otay Mesa Power plant is not yet constructed either, there will be uncertainties regarding the final arrangement of the power plant and its interconnection. The SDG&E transmission system modeled in this study was very different from the existing system, and if any of the transmission project assumptions in the study do not materialize, the study conclusions will no longer be valid and therefore will require a new study with new assumptions prior to the new South Bay project is proceeding to the construction phase.

Based on the information provided in the System Impact Study, the Cal-ISO is granting preliminary concurrence on the system impact study of the new South Bay interconnection. The Detailed Facilities Study should include update of the power flow analysis if any of the System Impact Study assumptions for the generation projects in the queue and the planned transmission projects change.

The Facilities Study should also include sensitivity studies for the scenario without the ENPEX Project, should provide updated results of the Category C and D contingency analyses and propose mitigations required for these contingencies, as well as transient stability analysis and cost estimates for required transmission upgrades.

Final interconnection approval will be granted pending satisfactory review of the Facilities Study.

If you have any questions about the Cal-ISO review of this study, please call Irina Green at (916) 608-1296 (igreen@caiso.com) or Richard Cashdollar at (916) 608-5961 (rcashdollar@caiso.com).

Sincerely,



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